

What is claimed is:

1. A modulating apparatus of an on-channel  
repeater which receives the signal on one channel and  
5 distributes the signal on the same channel, comprising:

a baseband signal configuring means for configuring a  
baseband signal by combining an input field and a segment  
sync signal;

a pilot adding means for adding a pilot signal to the  
10 baseband signal;

a filtering means for filtering the baseband signal  
with the pilot signal added thereto; and

a radio frequency (RF) up-converting means for up-  
converting the filtered signal into an RF signal.

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2. The modulating apparatus as recited in claim 1,  
further comprising an up-sampling means for up-sampling the  
baseband signal with the pilot signal added thereto.

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3. The modulating apparatus as recited in claim 2,  
wherein the filtering means generates an in-phase (I)  
signal and a quadrature (Q) signal which have a different  
phase with respect to the up-sampled signal and performs  
filtration.

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4. The modulating apparatus as recited in claim 3,  
further comprising:

an adding means for adding up the up-converted RF I  
and Q signals.

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5. The modulating apparatus as recited in any one  
of claims 1 to 4, further comprising:

a digital-to-analog converting means for converting  
the filtered baseband signal into an analog signal.

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6. The modulating apparatus as recited in claim 1 or 2, wherein the filtering means includes an Equi-Ripple (ER) filter and uses a window method.

5 7. The modulating apparatus as recited in claim 1 or 2, wherein the filtering means includes an ER filter.

8. The modulating apparatus as recited in claim 1 or 2, wherein the filtering means includes a square root raised cosine (SRRC) filter and uses a window method.

9. A modulating method of an on-channel repeater which receives the signal on one channel and distributes the signal on the same channel, comprising:

15 baseband signal configuring step of configuring a baseband signal by combining an input field and a segment sync signal;

a pilot adding step of adding a pilot signal to the baseband signal;

20 a filtering step of filtering the baseband signal with the pilot signal added thereto; and

a radio frequency (RF) up-converting step of up-converting the filtered signal into an RF signal.

25 10. The modulating method as recited in claim 9, further comprising:

an up-sampling step of up-sampling the baseband signal with the pilot signal added thereto.

30 11. The modulating method as recited in claim 10, wherein, in the filtering step, an in-phase (I) signal and a quadrature (Q) signal which have a different phase with respect to the up-sampled signal are generated and filtered.

35 12. The modulating method as recited in claim 11,

further comprising:

an adding step of adding up the up-converted RF I and Q signals.

5           13. The modulating method as recited in any one among claims 9 to 12, further comprising:

a digital-to-analog converting step of converting the filtered baseband signal into an analog signal.

10           14. The modulating method as recited in claim 9 or 10, wherein, the filtering step, an Equi-Ripple (ER) filter and a window method are used.

15           15. The modulating method as recited in claim 9 or 10, wherein, the filtering step, an ER filter is used.

16. The modulating method as recited in claim 9 or 10, wherein, the filtering step, a square root raised cosine (SRRC) filter and a window method are used.